



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/767,217

01/29/2004

John Papaconstantinou

CLFR:021US

2859

32425 7590 09/09/2008
FULBRIGHT & JAWORSKI L.L.P.
600 CONGRESS AVE.
SUITE 2400
AUSTIN, TX 78701

EXAMINER

MARTINELL, JAMES

ART UNIT

PAPER NUMBER

1634

MAIL DATE

DELIVERY MODE

09/09/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/767,217	Applicant(s) PAPACONSTANTINO ET AL.	
	Examiner James Martinell	Art Unit 1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-65 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-65 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/19/04 & 11/15/04</u> . | 6) <input type="checkbox"/> Other: ____. |

Art Unit: 1634

The disclosure is objected to because of the following informalities.

- (a) At page 8, line 12, "*sapier*" is a typographical error.

Appropriate correction is required.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-65 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are vague, indefinite, and incomplete.

- (a) The recitation of "mitochondrial-related nucleic acids" (claims 1, 9-35, 42, 52, and 58) is vague and indefinite because the instant application does not define the term and there is no clear art-recognized meaning for the term. The instant application does not distinguish a mitochondrial-related nucleic acid from a mitochondrial-non-related nucleic acid.
- (b) Claim 43 is incomplete because it refers to a table in the specification. See MPEP 2173.05(s).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1634

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-11, 16-39, and 58-62 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Chee et al (Science 274: 610 (1996)). Chee et al teaches the construction of microarrays containing human mitochondrial DNA sequences. Chee et al further suggests the use of such microarrays to study gene expression, genetic linkage, and genetic variability (*e.g.*, see the Abstract, page 61, column 1, line23 through page 613, column 2, and Figure 3 on page 613).

Claims 12-15, 40, 41, and 63-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chee et al (Science 274: 610 (1996)) in view of Novikoff et al (*Cells and Organelles*, 1970, Holt, Rinehart and Winston, Inc., New York, pp. 98-99). Chee et al teaches the construction of microarrays containing human mitochondrial DNA sequences. Chee et al further suggests the use of such microarrays to study gene expression, genetic linkage, and genetic variability (*e.g.*, see the Abstract, page 61, column 1, line23 through page 613, column 2, and Figure 3 on page 613). Novikoff et al discloses mitochondria to be present in "virtually all eucaryotic cells" (page 98, last full paragraph). It would have been obvious for one of ordinary skill in the art at the time the invention was made to construct microarrays in the manner of Chee et al and for the purposes suggested in Chee et al for any eucaryotic organism, all eukaryotic organisms containing mitochondria as disclosed by Novikoff et al.

Claims 52-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chee et al (Science 274: 610 (1996)) in view of Chenchik et al (U.S. Patent Application Publication 20020009730). Chee et al teaches the construction of microarrays containing human mitochondrial DNA sequences. Chee et al further suggests the use of such microarrays to study gene expression, genetic linkage, and genetic

Art Unit: 1634

variability (*e.g.*, see the Abstract, page 61, column 1, line 23 through page 613, column 2, and Figure 3 on page 613). Chenchik et al teaches the use of microarrays to screen for agents that may affect gene expression (*e.g.*, see paragraph 0062). It would have been obvious for one of ordinary skill in the art at the time the invention was made to use the microarrays of Chee et al to screen for agents that may affect mitochondrial gene expression (and hence structure and/or function) in the manner taught by Chenchik et al.

Claims 42-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chee et al (Science 274: 610 (1996)) in view of applicants' admitted state of the prior art (*e.g.*, page 3, line 3 through page 4, line 15 and Table 1, pages 13-30 of the instant application). Chee et al teaches the construction of microarrays containing human mitochondrial DNA sequences. Chee et al further suggests the use of such microarrays to study gene expression, genetic linkage, and genetic variability (*e.g.*, see the Abstract, page 61, column 1, line 23 through page 613, column 2, and Figure 3 on page 613). Applicants acknowledge various diseases to be known to be associated with mitochondrial function. It would have been obvious for one of ordinary skill in the art at the time the invention was made to use the mitochondrial nucleic acid arrays of Chee et al to determine whether various disease states, acknowledged by applicants to be known to be connected with mitochondria, are correlated with mitochondrial gene expression patterns.

Claims 49-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chee et al (Science 274: 610 (1996)) in view of applicants' admitted state of the prior art (*e.g.*, page 3, line 3 through page 4, line 15 and Table 1, pages 13-30 of the instant application). As applied to claims 42-48 above, and further in view of Novikoff et al (*Cells and Organelles*, 1970, Holt, Rinehart and Winston, Inc., New York, pp. 98-99). Novikoff et al discloses mitochondria to be present in "virtually all eucaryotic cells" (page 98, last full paragraph). It would have been obvious for one of ordinary skill in the art at the time the invention was made to construct microarrays in the manner of Chee et al and to use the mitochondrial nucleic acid arrays of Chee et al to determine whether various disease states, acknowledged by applicants to be known to be connected with mitochondria, or any disease states, are

Art Unit: 1634

correlated with mitochondrial gene expression patterns. for the purposes suggested in Chee et al for any eucaryotic organism, all eukaryotic organisms containing mitochondria as disclosed by Novikoff et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Martinell whose telephone number is (571) 272-0719.

The examiner works a flexible schedule and can be reached by phone and voice mail. Alternatively, a request for a return telephone call may be e-mailed to james.martinell@uspto.gov. Since e-mail communications may not be secure, it is suggested that information in such requests be limited to name, phone number, and the best time to return the call.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla, can be reached on (571) 272-0735.

OFFICIAL FAX NUMBER

The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Any Official Communication to the USPTO should be faxed to this number.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

/James Martinell/
Primary Examiner
Art Unit 1634